SUPPLEMENTARY MATERIAL

Extend, Pathomechanism and Clinical Consequences of Brain Volume Changes in Anorexia Nervosa

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Table 1. GM and WM changes in MRI studies of patients with acute, short-term weight recovered and long-term recoverd AN compared to healthy controls.

A) Acute AN	N/Age of AN-patients	Method	GM change	WM Change
Katzman *et al.* 1996	13 adol., 15.4 +/-1.2yrs	BIS	-6.2%	-3.6%
Giordano *et al.* 2001	20 adults, 30 +/-5.1yrs	Manual tracing Amygdala/ hippocampus only	-27% amygdala-hippocampus	
Swayze *et al.* 2003	17 adults, 25.1+/-7.3yrs	BRAINS	-4.2% (n.s.),	-11.0%
Connan *et al.* 2006	16 adults, 25.4 +/-7.5yrs	Manual tracing Hippocampus only	-8.2% and -7.5% hippocampus	
McCormick *et al.* 2008	18 adults, 26.6 +/-7.2yrs	BRAINS2 ACC only	-12.5% ACC	n.a.
Castro-Fornieles *et al.* 2009	12 adol., 14.5 +/-1.5yrs	VBM	-7.7%	-6.1%
Joos *et al.* 2010	12 adults, 25.0 +/-4.8yrs	VBM	-4.0%	-2.8% (n.s.)
Suchan *et al.* 2010	15 adults, 29.5 +/-8.2yrs	VBM	-0.1% (n.s.),	-3.3% (n.s.)
Gaudio *et al.* 2011	16 adol., 15.2 +/-1.5yrs	VBM	-8.2%	n.a.
Boghi *et al.* 2011	21 adults, 29.0 +/-10.0yrs	VBM	-1.0% (n.s.),	-7.7%
Roberto *et al.* 2011	32 adults, 26.9 +/-6.4yrs	VBM	-8.1%	-5.3% (n.s.)
Brooks *et al.* 2011	14 adults, 26. +/- 2.9yrs	VBM	-2.7% (n.s.)	+4.8%(n.s.)
Friedrich *et al.* 2012	12 adults, 24.3+/-6.2yrs	VBM,	--4.6%	0.0% (n.s.)
Mainz *et al.* 2012	19 adol., 15.7+/-1.5yrs	VBM	-16.0%	-1.9% (n.s.)
Frank *et al.* 2013a	19 adults 23.1 +/-5.8yrs	VBM	-0.3% (n.s.)	-1.8% (n.s.)
Frank *et al.* 2013b	19 adol., 15.4+/-1.4yrs	VBM	+2.1% (n.s.)	+0.2% (n.s.)
Amianto *et al.* 2013	17 adults 20 +/-4 yrs	VBM	-0.2% (n.s.)	-1.4% (n.s.)
Fonville *et al.* 2014	33 adults 23 +/- 4yrs	VBM	-1.5% (n.s.)	+1.1% (n.s.)
King *et al.* 2014*	40 adol., 15.9 +/- 2.5yrs	Freesurfer	global cortical thinning	n.a.
Via *et al.* 2014	19 adults 28.4 +/- 9.6yrs	VBM	-5.3%	-3.5%

(Table 1) contd….

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A) Acute AN	N/Age of AN-patients	Method	GM change	WM Change
Seitz *et al.* 2015	55 adol. 15.5 +/- 1.8yrs	Freesurfer	-7.1%	-4.7%
Fujisawa *et al.* 2015	20 adol., 14.2 +/-2.8yrs	VBM	-10.0%	n.a.
Favaro *et al.* 2015	38 adults 26.1 +/- 7.2yrs	Freesurfer	-3.1%	+1.1% (n.s.)
Burkert *et al.* 2015	21 adults 21.6 +/-5.7yrs	Freesurfer	-8.8%	-3.4% (n.s.)
Bomba *et al.* 2013, 2015	11 adol, 13.6 +/-2.8yrs	VBM	-10.9%	-6.5%
Bär *et al.* 2015	26 adults 23 +/- 5yrs	VBM	-7.8%	-0.2% (n.s.)
Bernadoni *et al.* 2016*	47 adol. 15.7 +/-2.4yrs	Freesurfer	Global cortical thinning	n.a.
Lavagnino *et al.* 2015, 2016	21 adults 28.5 +/- 4yrs	Freesurfer	Local cortical thinning, (n.s.)	n.a.
Pfuhl *et al.* 2016*	35 adol. 16.1 +/- 2.8yrs	Freesurfer	n.a.	-1.3% (n.s.)
Boto *et al.* 2017	20 adults 27.9 +/-10.3yrs	MorphoBox	-7.1%	-6.7%
Gaudio *et al.* 2017	14 adol. 15.7+/- 1.6yrs	VBM	-2.6% (n.s.)	-0.9% (n.s.)
Kohmura *et al.* 2017	23 adults 28.5 +/- 6.5yrs	VBM	-8.2%	+0.2% (n.s.)
Monzon *et al.* 2017	26 adol. 16.5 +/- 1.2 yrs	VBM	Red. in multiple cortical and subcortical regions	n.a.
Scaife *et al.* 2017	15 adol. 16.6 +/- 1.4yrs	FSL-VBM	-6.3%	-0.4% (n.s)

B) Short-term Weight Recovered	N/ Age of AN-patients	Method	Recovery Length	Residual GM Change	Residual WM Change
Roberto *et al.* 2011	32 adults, 27.1 +/-6.4yrs	VBM	Weight rec.	-4.2%	-1.2% (n.s.)
Swayze *et al.* 2003	13 adults, 25.4+/-7.3yrs	BRAINS	Weight rec.	-1.9% (n.s.)	-3.5% (n.s.)
Mainz *et al.* 2012	19 adol., 15.9 +/-1.5yrs	VBM	Weight rec.	-12.1%	+0.7% (n.s.)
Lazaro *et al.* 2013	35 adol.,16.3 +/- 1.3yrs	VBM	Weight rec.	+0.1% (n.s.)	-0.5% (n.s.)
Bomba *et al.* 2015	11 adol., 13.9 +/- 2.8yrs	VBM	Weigh rec.	-4.3%	2.9% (n.s.)
Bernadoni *et al.* 2016	35 adol., 15.7 +/- 2.4yrs	Freesurfer	Weight rec.	CT n.s..	n.a.
Monzon *et al.* 2017	10 adol., 16.5 +/- 1.3yrs	VBM	Weight rec.	ACC and hippocampus	n.a.
Castro-Fornieles *et al.* 2009	12 adol., 14.5 +/-1.5yrs	VBM	7 months post adm.	-1.6% (n.s.),	-0.8% (n.s)
C) Long-term Recovered AN	**N/ Age of AN-patients**	**Method**	**Recovery Length**	**Residual GM Change**	**Residual WM Change**
McCormick *et al.* 2008	48 adults, 26.1 +/-7.2yrs	BRAINS2, ACC only	1 year	-4.5% rdACC (n.s.)	
Mühlau *et al.* 2007	22 adults, 23.7 +/-6.0yrs	VBM	1.6 years	-4.0%	-0.7% (n.s.)
Katzman *et al.* 1997	6 adol, 17.0 +/-1.4yrs	BIS	2.7 years	-4.2%	-0.5% (n.s.)
Wagner *et al.* 2006	30 adults, 25.0 +/-6.4yrs	VBM	3 years	+0.2% (n.s.)	-2.0% (n.s.)
Lambe *et al.* 1997	12 mixed, 18.9 +/-6.9yrs	BIS	3 years	-2.6%	-0.5% (n.s.)
Favaro *et al.* 2015	20 adults, 26.3 +/-7.1yrs	Freesurfer	3.2 years	-0.1% (n.s.)	-0.2% (n.s.)
King *et al.* 2015*	34 adol, 22.7 +/- 2.9	Freesurfer	4.4 years	-0.7% (n.s.)	n.a.
Scaife *et al.* 2017	14 adults, 27 +/- 6.5yrs	FSL-VBM	4.7 years	-1.9% (n.s.)	+0.8% (n.s.)
Bernadoni *et al.* 2016*	34 adol, 22.2 +/- 3.1yrs	Freesurfer	4.7 years	CT n.s.	n.a.
Pfuhl *et al.* 2016*	32 adol, 22.5 +/- 3.0yrs	Freesurfer	4.7 years	n.a.	-6.1%
Joos *et al.* 2011	5 adults, 19.6 +/-5.1yrs	VBM	5 years	-1.6% (n.s.)	-0.3% (n.s.)
Friedrich *et al.* 2012	13 adults, 25.0 +/-4.8yrs	VBM	5.7 years	-0.9% (n.s.)	-2.9% (n.s.)

Chui *et al.* 2008	66 mixed, 21.3 +/-2.3yrs	INSE	6.5 years	+0.1% (n.s.)	0,00% (n.s.)
Frank 2013a	23 adults, 30.3+/-8.8yrs	VBM	7.9 years	+0.9% (n.s.)	-0.8% (n.s.)

Regional results given when global results did not reach significance; n.s.: not significant, adol.: adolescents, mixed: adolescents and adults; *: samples overlap; rdACC: right dorsal ACC, BIS: Brain Imaging Software, BRAINS: Brain Research: Analysis of Images, Networks, and Systems, CT: cortical thickness, VBM: Voxel Based Morphometry, INSE: Intensity Normalized Stereotaxic Environment for the Classification of Tissue, FSL: FMRIB Software Library.

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